Test Certificate

Incubator 8000 SC

File-No.: 6141.221
Edition 01.2003

DrägerService

Location of apparatus::

Explanation of symbols

— OK
| Defect
◯ Spare parts used
／ Report

C = Check condition
O = Check function
L = Check for leakage
V = Enter test value

Serial No.:
Date of delivery Startup:
Invoice No. or delivery No.:
Others:

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Enter software version, see test item 3.1. V

1. Information about accompanying documents

1.1 Instructions for Use Incubator 8000 SC (depending on software versio)

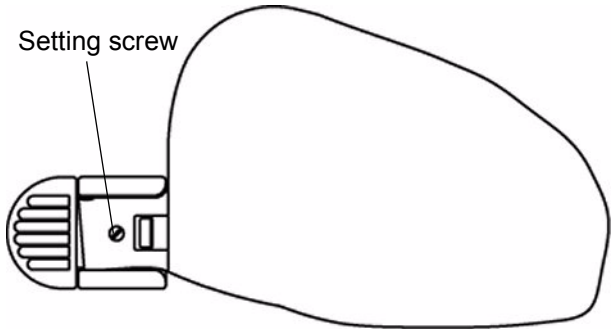
SW 10.n:
GA 6141.221
- German 90 27 493
- British English 90 27 493
- French 90 27 526
- Spanish 90 27 526
- American English 90 28 055
- Dutch 90 28 029
- Italian 90 28 030

SW 11.n:
GA 6141.221
- German 90 28 263
- British English 90 28 259
- French 90 28 482
- Spanish 90 28 483
- American English 90 28 484
- Dutch 90 28 485
- Italian 90 28 486

1.2 Equipment manual

1.3	Instructions for Use for special accessories. Instructions for Use must be available in appropriate combination in line with entry in equipment manual.		
2.	General condition	C	
2.1	Trolley		
2.1.1	Castors (3 versions)		
	2 castors 2 lockable castors Screw-in version (only pilot-lot) Check for tight fit.	O L	
	Protective caps (orange)	C	
2.1.2	Height adjustment with pedal (if fitted)	C	
2.1.3	Check screw fastenings: 2 Allen screws between trolley and pedestal (covered by caps) 4 Allen screws between baseplate on the pedestal and basic housing	C	
2.2	Cabinet left, right (if applicable)	C O	
2.3	Incubator backpanel		
2.3.1	Flap for fresh air filter	C O	
2.3.1.1	Sealing downstream the fresh air filter	C	
2.3.1.2 *	Replace fresh air filter 84 02 926	C	
2.3.2	Sticker 2M 20056 “dest. water”	C	
2.3.3	Connection socket air temperature sensor	C O	
2.3.4	Connection socket for skin temperature sensor (only permissible for SW 10.n on the backpanel)	C O	
2.3.5	9-pole female connector RS232 (if applicable)	C	
2.3.6	Mains connection	C	
2.3.7	Water container with cover, magnetic holder and silicone hose	C O L	
2.4	Handles at the front of the incubator (if applicable)	C	

2.5	Connection socket for oxygen supply	C	
2.5.1	Sticker 2M 20519 “When supplying additional oxygen use an oxygen analyser + flow table”	C	
2.6	Incubator canopy	C	
2.6.1	Air temperature sensor with holder and connecting cable	C	
2.6.2	Swivel window with seals		
	Adjust swivel window such that pane makes contact with seal. Check engagement and holding; to do so shut swivel window by exerting slight pressure such that retainer engages precisely. Then pull with fingers on outer edge of swivel window and move swivel window up and down.		
	Swivel windows must not open.	C O	
	If necessary, reduce the force applied to the rubber cone with the setting screw (if available) or by shortening the rubber cone.		
2.6.3	Adjust the swivel window using the setting screw.		



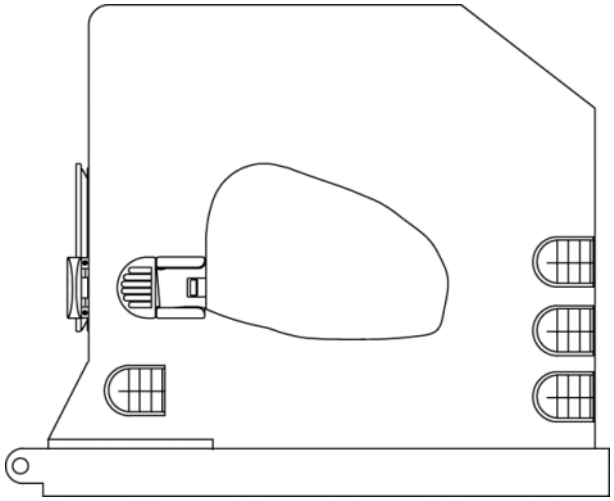
	Slowly turn the setting screw of the retainer clockwise until the previously closed swivel window opens. Then turn setting screw 2 full turns counter-clockwise.	C O	
2.6.4	Hose feedthrough	C	
2.6.5	Front flap, split or unsplit, with catches 2M 19899, double wall (must be fitted), catches for double wall 2M 19516 and 2 retainers 2M 19848 with 2 O-rings each.	C O	
2.6.5.1	Spring catches of front flap		
	Check function of the reset spring.	C	

2.6.5.2 *	Replace spring 84 00 496 of spring catches every 6 years.	C										
2.6.5.3	Hinge frame 2M 19542 (Note: When disassembling the hinge frames turn Allen screw clockwise)	C										
2.6.5.4	Tappet compl. 2M 19543, 2x Function of reset spring.	C O										
2.6.6	Removable double wall option Only permissible for resting surface with lateral tray.	C O										
2.6.7	Canopy holder Afterwards remove front flap and canopy. Note: Before detach plug from the air temperature.											
2.7	Bed with mattress Check that openings for supports are not damaged and the holding plates are screwed on tightly.	C										

Important for removable double wall option: If no removable double wall is fitted to the canopy back, a bed extension 2M 21225 must be available (to be plugged onto the rear side of the resting surface and covering the gap between the resting surface and rear canopy wall).

Note:
Applies to bed 2M 20888 only:

Do not use a bed extension if the incubator has a canopy with curved rear panel and if the rear double wall is fitted, otherwise there is a risk of temperature loss.



2.7.1 Hose holder (if available)

C

2.7.2 Bed height adjustment function

The bed can be pulled out at any height and any inclined position. Exert hand force on bed in pulled-out condition.

C O

2.7.3 Supports 2M 19654 for bed height adjustment.

C

Then remove bed and supports.

2.7.4 Labels

The "Warning" labels "1" shown below on the front and rear of the bed area are present and not damaged (Note: If the bed edge is too narrow the label should be affixed on the outside on the rear of the cover).

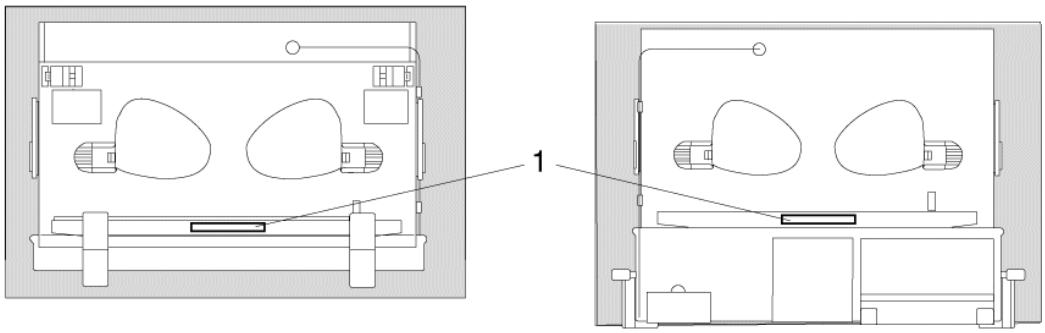
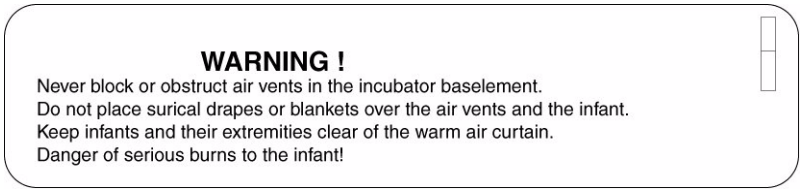


Fig.: Front (left) and rear (right) of bed area


WARNING !
Never block or obstruct air vents in the incubator baselement.
Do not place surical drapes or blankets over the air vents and the infant.
Keep infants and their extremities clear of the warm air curtain.
Danger of serious burns to the infant!

C

Part numbers of labels:

2M22228	German, Dutch
2M22229	English, French
2M22230	Italian, Greek
2M22231	Spanish, Portuguese
2M22232	Swedish, Finnish
2M22233	Norwegian, Danish
2M22234	Russian, Japanese

Note: Each part number includes two labels in each specified language, e.g. 2M22228 contains two labels in German and two in Dutch.

2.8 Intermediate element 2M 19537 (cover surface) C

2.9 Impeller compl. 2M 20205 with metal cone and O-ring M 19241 (large) and O-ring R 22364 (small) or silicone cone 2M 20542 C

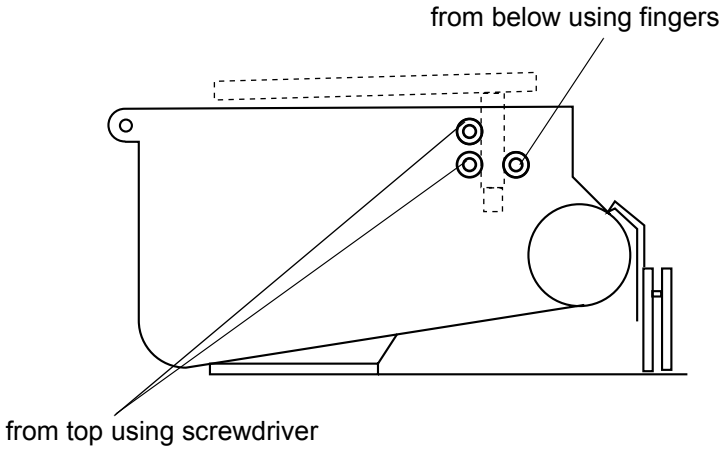
2.10 Trough 2M 19334 with 2x seal 2M 19595 for the supports. C

Then remove impeller and trough.

2.11 Testing ball bearing of height adjustment supports

Open flap underneath electronics assembly.

Check 2 x 3 ball bearing set for easy movement as shown in the Figure below.



If the ball bearing set does not move easily, replace the whole set 1330128 (3). C O

2.12 Aggregate seal 2M 19637 C

2.13 Seal 2M 19638 between motor and trough C

2.14 Seal 2M 20023 between heating and trough C

2.15 Motor

2.15.1 Lubricate motor with oil 2M 07839

To do this remove screw next to motor shaft and pour 10 drops of oil into the threaded bore. C

2.15.2 Check axial play

Test value: approx. 0.2 mm. O

2.16 Condition of boiler

Disassemble boiler or unit (pilot lot).

Test to be performed every year.

Note: Disconnect power cord before and allow boiler to cool down! If necessary, scrape out interior of boiler. C

2.16.1 Evaporator cap
Serial boilder plug-in type:
Cap 2M 20292 with O-ring 2M 08777
Boiler of previous series (milled):
Cap 2M 20105 O-ring 2M 08777 C

When assembling the boiler, lubricate O-ring of cap with lubricant, e.g. soapy water.

2.16.2 Sealing in the fresh air intake between unit and basic housing (only if unit is removed, not required during inspection) C

2.17 Additional fan

The fan is located below the trough. C

2.18 Valve in the fresh air intake at the bottom side of the incubator housing. C

2.19 Fan failure test

To do so, mount trough and canopy without impeller and switch incubator on.

Following 30 s self-test (dashes only on actual value displays of all modules) fan failure alarm is given by means of a continuous tone and visually by the corresponding “fan failure” alarm LED in the air temperature module lighting up, heating LED off. The audible alarm cannot be suppressed by pressing the button “horn off”. O

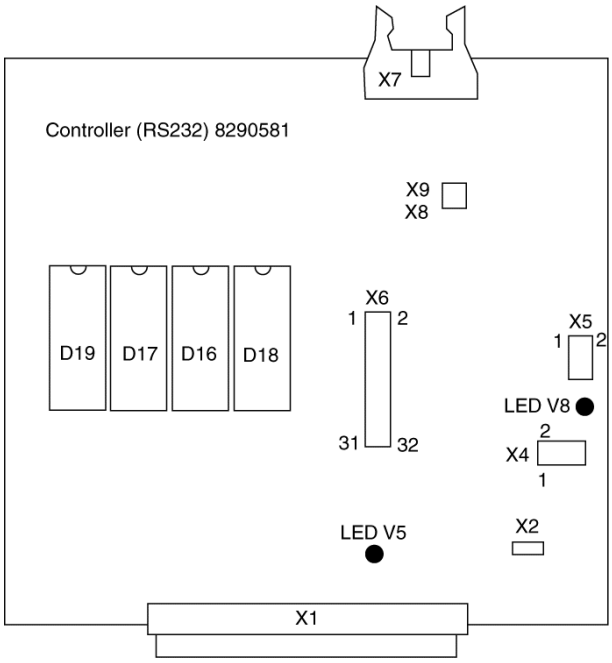
Switch unit off and assemble it ready for

operation.

2.20 Function test RS232 interface (if applicable)

To do so, fold down flap below the electronics module after undoing the two locks. The Controller PCB (viewed from the mounting side) is located at the top left of the electronics module. A yellow (V8) and a red (V5) LED are located on this PCB.

Controller PCB:



Function test:

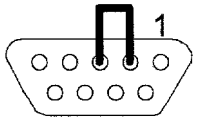
Switch incubator on:

Red and yellow LED light up continuously during incubator self-test (only dashes on the displays).

Incubator self-test completed.

Red LED lights up, yellow LED off.

Produce a short-circuit at the connecting socket for the interface on the device backpanel between Pin 2 and 3 (loop test):



Red LED lights up, yellow LED flashes at a frequency of 1 Hz. O

2.21 Power Pack PCB

From approx. 1993 a miniature fan will be installed on this PCB at the bottom right in the electronics module, which should operate when the unit is switched on. O

Important: This fan is only required if the option RS 232 (Controller PCB) is available. In case this option is not available, you may disconnect this fan if the noise emission gets too high.

2.22 Membrane keypad C

In SW 11.n the “alarm” LED must be fitted.

2.23 Seca balance (if applicable) with plug-in power pack 2M 20 640, battery 83 01 856 and label “do not pull out” C

2.23.1 Function test

Line up balance until water level is vertical.

Place the resting surface on the scales and press the “check” key.

Indication of weight shows “test”.

Then LEDs and all segments of the indication of weight (8888) are switched on and off several times. Then a test value is indicated which must be between 8990 and 9010. The end is indicated by text “end”. O

2.24 Rack for additional equipment (if applicable) C

2.25 Flap with brief instructions for use, permissible for SW 11.n only.

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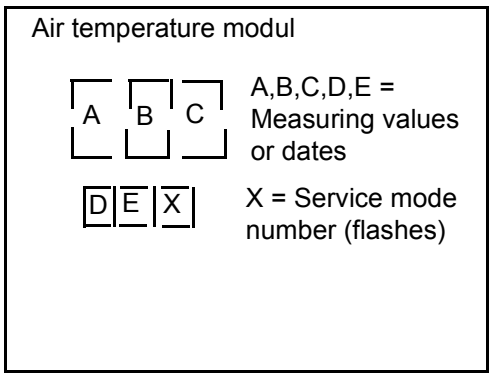
3. Record operating data, comparison of measured values of temperature sensors and severe 10 minute test. To do so, switch unit on, wait for 35 s self-test to be completed and press buttons “horn off” and “air temperature” simultaneously for 8 s

The service mode number will flash on the lower right display of the air temperature module.



The next mode each can be reached by pressing the button “+air temperature”. The service mode can be exited any time by pressing the key “check lights”.

3.1 Mode 0:

Software-version AB.CD V

3.2 Mode 1:

Operating hours A B C D E in hours. V

3.3 Mode 2:

Actuating operations of button “check lamps”.

A B C D E = number of actuating operations O

3.4 Mode 3:

Actuating operations of button “check 36.0 °C” (only if skin temperature module is available) A B C D E = no. of actuating operations O

Mode 4:
not applicable for Incubator 8000 SC/NC

3.5 Mode 5:

Measured value of overtemperature sensor in °C.

The max. deviation from the measured value of the air temperature sensor (mode 6) may be 0.3 °C. V

3.6 Mode 6:

Measured value of the air temperature sensor in °C. V

Mode 7, 8 and 9:

not applicable for Incubator 8000 SC/NC

3.7 Mode A:

A/D test channel in mV (as of SW 10.04)
ABCD: 4400 ±300 V

Calibration: see repair instruction Analog PCB.

3.8 Mode B:

Measured value skin temperature sensor 1 (core temperature, top socket), as of SW 11.n. O

3.9 Mode C:

Measured value skin temperature sensor 2 (peripheral temperature, bottom socket), as of SW 11.n. O

3.10 Severe 10 minute test

To do so, press button “reset overtemperature” in service mode 10 times every 2 seconds.

No „INOP“ error message. O

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4. Replacement of wear and tear parts electronics

To do so, fold down the flap below the electronics module after undoing the two locks.

4.1 * Replace battery 83 01 856 on the Power Pack PCB every year. O

Note: Do not close flap.

5. Technical safety check

To do so, fold down flap below electronics module after undoing the two locks.

5.1 Protective conductor test

Test items:
Protective conductor terminal at the left side of the unit, trolley, screws at the height-adjustable pedestal, flap below electronics module, metal housing electronics module.

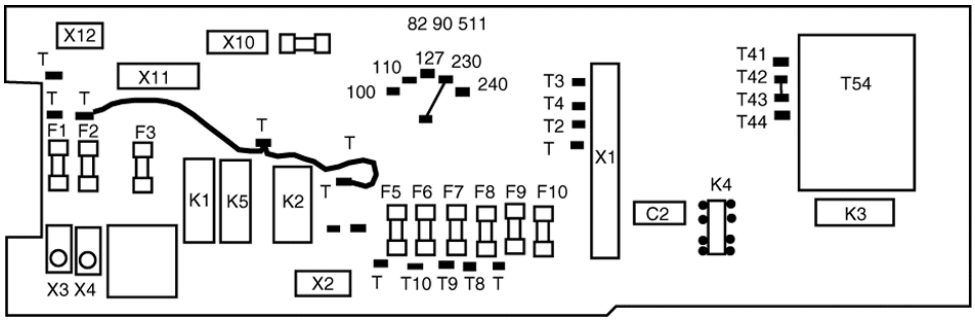
Test value: R < 0.2 Ohm O

5.2 Equivalent device leakage current measurement

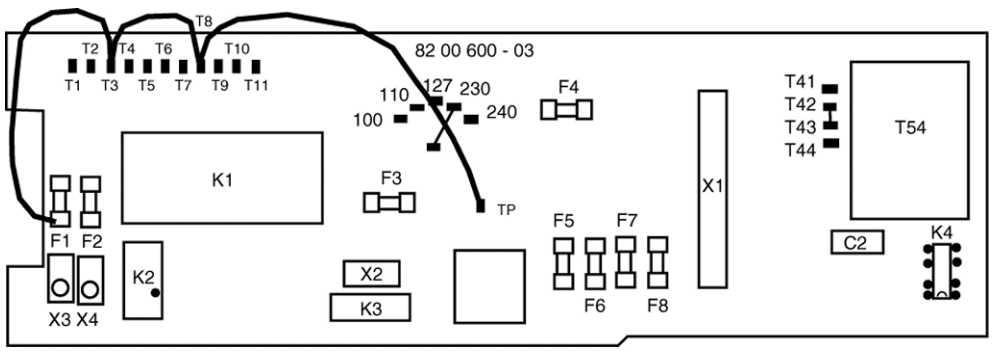
Caution: Detach mains connection before!

For measurement purposes the switch-on relay and the safety relay must be jumpered.

Unit PCB 82 90 511:



Unit PCB 82 00 600 greater than 04 (pilot lot):



Actuate height adjustment for measurement
Subsequent measurements may exceed the first measured value of the Test

Certificate by 50% max. but must not exceed the specified test value.

Test value: I_A < 1.0 mA V

Note: The first measured value must be recorded in the new Test Certificate.

First measured value: I_A = mA

With Gerb Eutotester GM-50

Switch positions on Gerb Eurotester:
Application part: all
IEC/VDE standard: VDE 751
Protection class: 1
Test item: Equivalent device leakage current SL

Insert power plug of Incubator 8000 SC into test receptacle of the Gerb Eurotester.

Important:
The measured values indicated on the Gerb Eurotester are approx. 10% lower than the measured values indicated on the Wison VDE tester.

Make sure Incubator 8000 SC is switched on.

Subsequent measurements may exceed the first measured value of the Test Certificate by 50% max. but must not exceed the specified test value.

Test value:
Equivalent device leakage current:
lower than or equal to 1.0 mA V

Note:
The first measured value must be recorded in the new Test Certificate.

Important: After measurement was performed the connections of the solder tags must be removed.

5.3 Visual check of the mains power conducting cables C

5.4 Bed height adjustment

Visual check of the chain drives. The holders in the chain for the supports of the bed must be fixed securely.. C O

Close flap below electronics module and assemble incubator ready for operation.

5.5 Testing the CPU PCB

The 8290571-00 CPU is not permitted for use, see Service bulletin.

The following CPUs are permitted: 8290571 upper than or equal to 01 and 8305141. O

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6. Function check

The function check must be carried out at room temperature (20 – 28 °C). There must be no additional objects in the patient compartment.

6.1 Height adjustment (if applicable)

Check all 4 switches. O

6.2 Incubator basic functions

Switch incubator on.

Green operating LED lights up. Dashes are indicated on the actual value display of all modules for 35 s. Any overtemperature alarm can be deactivated by pressing the “reset overtemperature” button. O

6.2.1 Press button “Check lights”

All LEDs except for the power failure LED light up; all digital displays indicate 88.8 and a continuous tone sounds. LEDs and displays are then blanked for2 seconds and the horn is deactivated. O

Note: “Alarm” LED must only be available in SW 11.n and can only be controlled by this SW.

6.3 Air temperature module

The desired value of 33.0 °C flashes. “SEt” and the current air temperature flash alternately in the actual value display. Acknowledge desired value by pressing “+air temperature” or “-air temperature”:

Continuous display of desired value and actual value (except for alarms in the air temperature module). O

6.3.1 Checking the desired value setting and “>37 °C” function O

6.3.2 Set desired value to 36.0 °C:

Reference measurement in the centre of the bed at a height of 10 cm using thermometer 2M 11111.

Test value: 36.0 ±1.0 °C
For adjustment instructions, see repair instructions. O

Note: Check the O2 module during the warm-up phase => 6.4.

6.3.3 Set desired value by 1.6 °C lower or higher than the actual value

Actual value display, “+1.5 °C” LED and “Alarm” LED flash and intermittent audible alarm. Press “horn off” button.

Horn off, actual value display flashes, “+1.5 °C”, “Alarm” and “Horn off” LEDs light up. O

6.3.4 Additional fan

Set desired value by 1.0 °C higher than actual value.

Heating LED flashes, additional fan stops.

Set desired value by 1.0 °C lower than actual value

Heating LED off, additional fan works, no abnormal noise. O

Note: A time delay may occur due to the PID controller.

6.3.5 Heating fan

No abnormal noise of fan motor and impeller. O

Then set desired value to 37.0 °C.

6.3.6 Detach plug of air temperature sensor

Visual and audible sensor alarm, heating off. O

Then connect air temperature sensor ready for operation.

6.4 External oxygen supply

To do so, supply oxygen to the incubator via O2 socket:

If the rating plate indicates 50 Hz or 50/ 60 Hz:

7.5 +0.5 L/min O2 at 50 Hz or

9.0 +0.5 L/min O2 at 60 Hz

If rating plate indicates 60 Hz:
7.5 +0.5 L/min.

Comparison measurement using an Oxydig after 30 minutes.

Test value: 40 +4/-6% by vol. O2 O

If the test value is not reached, the incubator will be leaky or the fresh air intake will be faulty.

6.5 Humidity module

Checking of desired value adjustment by means of buttons “+desired value” or “-desired value” humidity from 0 (switched off) to 10 (max. humidity supply). O

6.5.1 Set desired value to 6.

After 30 minutes, no humidity condensation in the canopy apart from the corners. O

6.5.2 Water shortage alarm

To do so, interrupt water supply and set desired value to 9.

Visual and audible water shortage alarms will be given after a few minutes of evaporator up to 25 minutes).

Suppress the audible alarm by pressing the “horn off” button. O

6.5.2.1 Establish water supply

H2O alarm LED goes off after 6 minutes max. O

6.5.3 At a desired value of 9 water will condense at the top of the canopy. O

6.6 Skin temperature module (if applicable)

6.6.1 Connect skin temperature sensor to top socket (for SW 11.n, and if 2 sockets are available) and leave bottom socket open.

The sensor temperature will be displayed. If the temperature measured is outside the measuring range, the following messages will be displayed on the actual value display:

beyond measuring range: „---“

below measuring range: „_“ O

6.6.2 Thermomonitoring (option)

Connect sensor to bottom socket and press “foot symbol” button.

The LED in the button comes on, the temperature will be displayed as described under 6.6.1. O

6.6.3 Press “Check 36 °C” button

Display of actual skin temperature value = 36.0 ±0.1 °C. O

NOTE: The following test applies only to units with skin temperature sensor connections on the left hand side of the unit.

Plug the 36 °C test connector (7911314) into the yellow and white socket of the skin temperature sensors.

The displayed actual core temperature may deviate by a maximum of +/- 0.2 ° C from the simulated value (36 ° C). O

Wiggle the connected yellow 36 °C test connector horizontally and vertically.

The displayed actual core temperature may deviate by a maximum of +/- 0.2 °C from the simulated value (36 °C). O

On incubators with the "Thermomonitoring" option press and hold down the button “foot symbol”.

The displayed actual peripheral temperature may deviate by a maximum of +/- 0.2 °C from the simulated value (36 °C). O

Wiggle the connected white 36 °C test connector horizontally and vertically.

The displayed actual peripheral temperature may deviate by a maximum of +/- 0.2 °C from the simulated value (36 °C) as you wiggle the connector. O

6.6.4 Comparison measurement between skin temperature sensor and thermometer 2M 11111.

Test value: allowed deviation 0.4 °C. Check the sensor for cable break. O

6.6.5 Switch on skin temperature module with button “Control” in the skin temperature module

Green LED “Control” lights up. The current skin temperature actual value is taken over as desired value and flashes:

Exception:

a) actual value < 35.0 °C => desired value = 35.0 °C
b) actual value < 37.0 °C => desired value = 37.0 °C

The current actual skin temperature value and “SEt” flash alternately. Acknowledge desired value by pressing the “+desired value” button or “-desired value” skin temperature button.

Skin temperature:
Continuous display of desired value and actual value of skin temperature (except for alarms in the skin temperature module). O

6.6.6 Checking the desired value adjustment with the “+desired value” and “-desired value” buttons skin temperature within the limits of 35.0 °C and 37.0 °C.

Should the actual value deviate by more than 0.5 °C from the desired value a visual and audible alarm will be given. O

6.6.7 Pull plug of skin temperature sensor

For SW 10.n:

Visual and audible sensor alarm, heating off.

For SW 11.n:

Visual and audible sensor alarm after approx. 15 s, heating off. O

Then press “Control” button in the air temperature module and set desired air temperature value to 39.0 °C.

Green “Control” LED in the air temperature module lights up.

6.7 Power failure alarm

Set desired air temperature value to 39.0 °C, desired humidity value to 6 and disconnect unit from mains.

Continuous visual and audible alarm for 30 seconds.

	Establish mains connection.		
	The desired values have not changed.	O	
6.8	Clear error list	O	

7.	Test of accessories and special accessories required for operation		
7.1	CS-O2 connecting hose blue marking non-reusable hose clamps	C L	
7.2	O2 flowmeter 2M 19510	C	
7.2.1	Rail claw	C	
7.2.2	Thread M 12 x 1 (female)	C	
7.2.3	Plastic sleeve M 23946 To be replaced in case of fissuring	C L	
	Ring D 11137 To be replaced, if necessary	C	
7.2.4	Control valve M 18376	O L	
	Soap bubble test.		
	Stop with control valve fully open.		
7.2.5	Output At 5 bar supply pressure and with control valve fully open		
	Test value: V > 40 L/min	O	
7.2.6	Flowmeter comparison measurement		
	Check with 3 values.		
	At lowest measurement point +15%, at all other measurement points +10% of reference value.	O	
7.2.7	Cap nut M 04235 M 34 x 1.5 (female)	C	
7.2.7.1	Seal M 04237	C	
7.2.8	Connecting socket M 06258	C	
7.2.9	Connecting hose 0.5 m	C	
7.3	O2 limiter 2M 16010	C	
7.3.1	Sticker 2M 16459	C	

7.3.2	Leak test Pressure built up: p = 100 mbar. Test value: After 1 minute no pressure drop (short hose to pressure gauge).	L	
7.3.3	Setting 5 bar supply pressure and the control valve fully open. Test value: “white field” V = 5.5 - 6.0 L/min “red field” V > 16 L/min	O	
7.4	Oxygen measurement device Test according to Test Certificate „Oxydig“ or Test Certificate „MiniOX 3000“.	C O	
7.4.1	Measuring instrument holder 2M 17770	C	
7.5	Vacuum mattress 2M 16920	C O	
7.6	Infusion stand	C O	
7.7	Ventilation hose holder 2M 19630	C O	
7.8	Tray (20*30 cm) M 24678	C O	
7.9	Oxygen distributor 2M 19555	C O L	
7.10	Aspiration		
7.10.1 *	Replace bacteria filter CH 102 (set of 5: 6723976)	C	
7.10.2	Frame M 25858	C	
7.10.2.1	Jar holder	C	
7.10.2.2	Connecting hose	C	
7.10.2.3	Secretion aspiration hose M 25780	C	
7.10.2.4	Secretion sight glass or finger tip	C	
7.10.3	Jar M 20091 (2 x)	C	
7.10.4	Jar cap 2M 85011	C	
7.10.4.1	Check tightness of collar M 26008 and angled socket 2M 19063	C	

7.10.5	Float M 26007	C	
7.10.6	Function		
	Assemble complete aspiration system.		
	Build up vacuum and turn jar around: float is drawn in.		
	Turn jar around and shut off vacuum: float drops back.	O	
7.10.7	Relief valve (if fitted) with mica insulator R 17329	C O L	
7.10.8	Ejector		
7.10.8.1	Output with paediatric bronchial aspiration 2M 85125 (-0.5 bar)		
	Output -0.5 bar, of which -0.4 bar in 10 s.	O	
7.10.8.2	Output with bronchial aspiration 2M 85120 (-0.9 bar)		
	Output -0.8 bar, of which -0.7 bar in 10 s.	C O	
7.10.9	Vacuum gauge		
	Reference measurement.		
	Perm. tolerance ±4% of full scale value.	C O	
7.10.10	Shutoff valve		
7.10.11	Control valve	C	
7.10.12	CS connecting hose in line with national regulations	C L	

8.	Make unit available to the user in a ready-to-operate condition		
8.1	All unit covers and components must have been fixed in position	C	
8.2	There must be no dirt or tackiness noticeable on the unit which could impair safety	C	
8.3	Check unit labelling	C	
8.4	The incubator must be standing firmly and steadily	C	

8.5	Visually inspect unit assembly for perfect condition	C									
9.	Test Certificate Name: Date:										
10.	* These steps are regarded as repair work and therefore not included in the inspection service price.										
11.	Report:										

12. Appendix

12.1 Test equipment

Flowmeter, 10 to 120 L/min	79 00 718
Flowmeter block, 0,2 to 14 L/min	79 01 161
Flowmeter O2, 16 L/min, 5 bar	2M 85 502
Oxydig, complete or MiniOx 3000 or national equivalent oxygen measurement device	83 04 411 2M 22 464
Thermometer or Temperature- and humidy measurement device	2M 11 111 79 10 980
Socket wrench set, 1/4“	79 00 905
Mains power tester Secutest or or national equivalent mains power tester for 110/127 V voltage range	79 10 594
Sensor simulator, skin temperature	79 01 236
Sensor simulator, Incubator 8000	79 01 240
Test connector 36 °C	79 11 314
Dummy assembly, Incubator 8000, complete with connecting cable	79 01 764
Measuring lead, red 0,25 m	79 00 679
Measuring lead, black 0,25 m	79 00 680
Measuring probe, red Kleps 30	79 01 026
Measuring probe, black Kleps 30	79 01 027
Touch-up applicator, blue munsell	79 01 261
Touch-up applicator, light orange munsell	79 01 262

12.2 Tools and supplies for repair

Teflon strip 12 x 0,1 1-PTFE/BAM-DVGW CS	11 92 507
Oil HLP 32, 10 mL bottle, DIN 51524	2M 07 839
Cabel ties 2,4 x 200	87 12 065
Cotter-pin driver C2, 2 mm	79 10 216
Water pump pliers, 175 mm	79 01 283

12.3 Spare parts

every maintenance	- ambient filter	84 02 926
yearly	- rechargeable battery (Accu) - bakterial filter (Option „Bronchus-Absaugung“)	83 01 856 67 23 976
every 2 years	- filter screw	2M 19 622
every 6 years	- spring of spring catches - pressure regulator (Option „O2 controlling“)	84 00 496 84 02 745